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10/528,794	03/23/2005	Osamu Ishigami	SHM-I5962	9163

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EXAMINER	
ZHENG, LOIS L	

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1793	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/528,794	ISHIGAMI ET AL.	
	Examiner	Art Unit	
	LOIS ZHENG	1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 March 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 3-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 3-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Status of Claims

1. Claim 5 is amended in view of applicant's amendment filed 23 March 2009. Therefore, claims 1 and 3-9 are currently under examination.

Status of Previous Rejections

2. The rejection of claims 1 and 3-4 under 35 U.S.C. 112, first paragraph, is withdrawn in view of applicant's persuasive argument in the remarks filed 23 March 2009.

3. The rejection of claim 9 under 35 U.S.C. 103(a) as being unpatentable over Ohtani et al. US 2003/0162077 A1(Ohtani) in view of Fukui et al. US 6,440,598 B1(Fukui) and Kovacs et al. US 5,211,663 (Kovacs), and further in view of Vashi US 4,497,667(Vashi) is withdrawn in view of applicant's claim amendment filed 23 March 2009 and in view of new ground of rejection set forth below in response to applicant's new claim amendment.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1, 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2002-012990(JP'990), and further in view of Kovacs et al. US 5,211,663 (Kovacs).

JP'990 teaches a passivation method for treating a metal workpiece to improve corrosion resistance, wherein the metal workpiece is immersed in an alkaline passivation solution comprising an alkaline agent such as sodium bicarbonate, calcium carbonate, and carbon dioxide (abstract, paragraph [0021]). Air bubbles are generated by a water jet or an ultrasonic wave in the alkaline passivation solution and the pH of the passivation solution is controlled (abstract, paragraphs [0006-0012]). JP'990 further teaches such passivation method can be applied to metals such as stainless steel(abstract, paragraph [0014]).

However, JP'990 doe not explicitly teach that the air bubbles are from external air. JP'990 also does not explicitly teach the claimed treatment temperature of 40-60°C.

Kovacs teaches a passivation method for treating metal surfaces such as stainless steel(abstract). Kovacs further teaches that the passivation solution may be oxygenated by bubbling with air or oxygen to improve the passivation process (col. 5 lines 52-54). Kovacs also teaches that the passivation temperature is 20-50°C and higher passivation temperature leads to faster passivation rate, but could also result in a less uniform passive layer (col. 5 lines 55-62).

Regarding claim 1, one of ordinary skill in the art would have found it obvious to have substituted the cavitation air bubble generation technique as taught by JP'990 with

air or oxygen bubbling technique as taught by Kovacs with expected success of improving the passivation process as taught by Kovacs.

In addition, one of ordinary skill in the art would have found it obvious to have varied the passivation temperature in the passivation method of JP'990 via routine optimization to achieve desired passivation rate and the desired uniform passive layer on the metal surface, since Kovacs teaches that the passivation temperature is a result effective variable that affects the rate of passivation and the uniformity of the passive layer.

In addition, the alkaline passivation solution as taught by JP'990 in view of Kovacs has a pH that encompasses the claimed pH of 9-12. Therefore, a prima facie case of obviousness exists. See MPEP 2144.05. The selection of claimed pH range from the disclosed range of JP'990 in view of Kovacs would have been obvious to one skilled in the art since JP'990 in view of Kovacs teach the same utilities in its' disclosed pH range.

Furthermore, since JP'990 teaches that the pH of its passivation solution is controlled, then the claimed addition of a pH buffer or the claimed pH buffer action is present within the passivation process of JP'990 in view of Kovacs.

Lastly, JP'990 in view of Kovacs teach the claimed alkaline solution containing the claimed carbon dioxides, the examiner concludes that the claimed passive film produced from metal ions constituting stainless steel and hydroxide ions is formed in the process of JP'990 in view of Kovacs.

Regarding claim 3, Kovacs further teaches that after the formation of passive film, the metal surface is rinsed with water and dried(col. 6 lines 11-13). Therefore, one of ordinary skill in the art would have found it obvious to have rinsed the stainless steel surface undergone the passivation process of JP'990 in view of Kovacs with water and dried the passive film as taught by Kovacs in order to remove excess passivation solution on the metal surface and to dry the passive film. In addition, even though JP'990 in view of Kovacs do not explicitly teach the claimed drying temperature of 100-200°C, one of ordinary skill in the art would have found it obvious to have varied the drying temperature in the process of JP'990 in view of Kovacs via routine optimization in order to achieve desired coating drying speed since the drying temperature directly affects how fast the passive layer becomes dry, i.e. result effective variable.

Regarding claim 4, even though JP'990 in view of Kovacs do not explicitly teach that the stainless steel member is a separator for fuel cell, one of ordinary skill in the art would have found it obvious to apply the metal surface treatment process of JP'990 in view of Kovacs to a stainless steel member used for any purposes including the claimed separator in a fuel cell.

6. Claims 5-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohtani et al. US 2003/0162077 A1(Ohtani) in view of Fukui et al. US 6,440,598 B1(Fukui), and further in view of Kovacs, and further in view of McCready US 4,382,825(McCready).

Ohtani teaches a method for making stainless steel separator for use in a fuel cell comprising pressing the stainless steel sheet to form gas flow and cooling water passages and subjecting the press-formed separator to passivation treatment to form a passivation layer on the surface of the stainless steel separator(abstract, paragraphs [0005, 0009, 0024]).

However, Ohtani does not explicitly teach the claimed application of lubricant and the claimed cleaning, rinsing, passivation using an alkaline solution and drying steps.

Fukui teaches also teaches a process for the manufacturing of separators for use in a fuel cell(abstract). Fukui further teaches that the workability of the metal material during press-forming can be improved by applying a lubricant onto the surface of the material(col. 2 lines 27-63).

Therefore, it would have been obvious to one of ordinary skill in the art to have incorporated the use of a lubricant as taught by Fukui into the separator manufacturing process of Ohtani in order to improve the workability of the press-forming step as taught by Futui.

The teachings of Kovacs are discussed in paragraph 4 above. Kovacs further teaches that its passivation process can be preceded by pre-treatments such as alkaline cleaning and rinsing steps(col. 5 lines 25-30). Furthermore, Kovacs teaches that the passivated and heat treated metal surface can be rinsed and dried(col. 6 lines 12-14). The passivation film formed as taught by Kovacs comprises hydroxide as claimed(col. 6 lines 3-5). Example 4 of Kovacs further shows that an alkaline pH of 12(col. 7 line 32).

Therefore, it would have been obvious to one of ordinary skill in the art to have incorporated the passivation process, including the pre-treatment and post-treatment steps, as taught by Kovacs into the passivation step in the separator manufacturing process of Fukui in order to achieve superior corrosion resistance as taught by Kovacs (col. 3 lines 59-62).

McCready teaches an alkaline cleaning process comprising treating a steel surface with an alkaline cleaning solution to remove surface contaminates such as lubricant to prepare the steel surface for subsequent coating treatment (col. 33-46 and 51-65). McCready further teaches that it is conventional to rinse the cleaned metal surface with tap water followed by deionized water to remove excess cleaning solution from the metal surface (col. 1 lines 46-52).

Therefore, it would have been obvious to one of ordinary skill in the art to have incorporated the alkaline cleaning step including the two rinsing steps as taught by McCready into the alkaline cleaning step of Ohtani in view of Fukui and Kovacs in order to thoroughly remove the contaminates such as lubricant from the metal surface to prepare the steel surface for subsequent coating treatment as taught by McCready.

Regarding claim 5, the separator manufacturing process as taught by Ohtani in view of Fukui, Kovacs and McCready is substantially the same as the separator manufacturing process as claimed (i.e. substantially the same press-forming, alkaline cleaning, washing/rinsing, passivation, rinsing and thermal drying steps). In addition, even though Kovacs teaches that the passivation solution is applied by immersion instead of spraying, one of ordinary skill in the art would have found it obvious that the

passivation solution of Ohtani in view of Fukui and Kovacs can be applied by spraying with expected success since both spraying and immersion are functionally equivalent passivation application techniques widely known and used in the metal surface passivation and conversion coating industry.

Furthermore, the first rinsing step with tap water after the application of an alkaline cleaning solution as taught by Ohtani in view of Fukui, Kovacs and McCready reads on the claimed washing water being mains water or industrial water. The second rinsing step with deionized water after the first rinsing step as taught by Ohtani in view of Fukui, Kovacs and McCready reads on the claimed washing water removing step.

Regarding claim 6, the passivation solution as taught by Ohtani in view of Fukui, Kovacs and McCready has a pH of 12 as shown in Example 6 of Kovacs. Kovacs further teaches a preferred the passivation temperature of 37°C(col. 5 line 58).

Regarding claim 7, Kovacs further teaches the addition of pH buffer (col. 5 lines 50-52).

Regarding claim 8, although Ohtani in view of Fukui, Kovacs and McCready do not explicitly teach the claimed drying temperature, one of ordinary skill in the art would have found it obvious to have adjusted the drying temperature via routine optimization in order to achieve desired drying rate.

Regarding claim 9, McCready further teaches that its alkaline cleaning solution comprises a basic salt and a surfactant (abstract, col. 2 line 14 – col. 3 line 9).

Response to Arguments

7. Applicant's arguments, filed 23 March 2009, have been fully considered but they are not persuasive.

In the remarks, applicant argues that JP'990 does not teach the claimed bubbling of external air and JP'990 teaches away from the present invention because cavitation as taught by JP'990 forms vapor bubbles in the liquid and there is no need to introduce external air to the liquid.

The examiner does not find applicant's argument persuasive because applicant's argument is directed to JP'990 alone while the rejection ground is based on the combination of JP'990 in view of Kovacs. The applicant is reminded that one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. In re Keller, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); In re Merck & Co., Inc., 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). See MPEP 2145 (IV).

Applicant further argues that substituting cavitation air bubbling of JP'990 with external air or oxygen bubbling of Kovacs would destroy the purpose and the advantages of JP'990 invention because generation of air bubbles by cavitation is an essential feature of JP'990.

The examiner does not find applicant's argument persuasive because the main goal of JP'990's process is to form a passivation film on the surface of a stainless steel member to prevent corrosion. The application of air bubbles from cavitation helps to achieve this goal. Kovacs teaches a process for passivating stainless steel wherein

external air/oxygen bubbling can be utilized to improve passivation. One of ordinary skill in the art would have realized that both air bubbling by cavitation as taught by JP'990 and external air/oxygen bubbling by Kovacs performs the same function of aiding or improving passivation film formation on stainless steel surfaces. Therefore, one of ordinary skill in the art would have found substituted the air-bubbling by cavitation as taught by JP'990 with external air/oxygen bubbling as taught by Kovacs with expected success of improved passivation film formation.

Applicant's further argument regarding the newly amended claim feature(i.e. water wash is mains water or industrial water) in claim 5 is moot in view of new grounds of rejections set forth in paragraph 5 above.

Applicant's arguments regarding Ohtani's lack of teaching of the claimed application of lubricant and the claimed passivation technique are not persuasive because applicant is attacking the Ohtani reference alone while the rejection ground for claims 5-8 are based on combined teachings of Ohtani in view of Fukui and Kovacs. The applicant is reminded that one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. In re Keller, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); In re Merck & Co., Inc., 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). See MPEP 2145 (IV).

Applicant further arguments regarding Fukui's lack of teaching of passivating stainless steel surface is not convincing applicant is attacking the Fukui reference alone while the rejection ground for claims 5-8 are based on combined teachings of Ohtani in view of Fukui and Kovacs. The applicant is reminded that one cannot show

nonobviousness by attacking references individually where the rejections are based on combinations of references. In re Keller, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); In re Merck & Co., Inc., 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). See MPEP 2145 (IV).

Applicant further argues that Kovacs does not teach "whereby a passivation film constituted by hydroxides produced from metal ions constituting stainless steel thin sheet and hydroxide ions is formed".

The examiner does not find applicant's argument persuasive because the Kovacs the passivation film comprises hydroxide. One of ordinary skill in the art would have realized that a passivation film is formed by chemical reaction of the metal surface with the treatment solution. Therefore, the passivation film of Kovacs would have constitute hydroxides formed by reaction between metal ions in the stainless steel thin sheet and the hydroxide ions in the treatment solution as claimed.

Applicant's argument regarding Vashi is moot in view of new grounds of rejection in response to applicant's new amendment to claim 5.

Lastly, applicant argues that the rejection grounds are formulated by selectively picking and choosing passages from a collection of references based on hindsight reconstruction.

The examiner does not find applicant's argument persuasive because any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does

not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). In this case, a collection of references(i.e. Kovacs, Fukui and Vashi) are incorporated into the rejection ground to remedy the deficiency of the primary references JP'990 or Ohtani. In addition, proper motivation for each of the secondary references has been presented above. Therefore, the examiner maintains that the combination of the references is proper.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LOIS ZHENG whose telephone number is (571)272-1248. The examiner can normally be reached on 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/George Wyszomierski/
Primary Examiner
Art Unit 1793

LLZ